

REMARKS

This application has been carefully reviewed in light of the office action mailed April 21, 2003. The specification has been amended to correct a typographical error therein. Claims 1-53 were pending in this application at the time of the office action. The examiner rejected all claims 1-53. Claims 1-19, 21-34, 37-41, and 44-53 are presently pending in the application. Of these, claims 1, 21, 37, and 44 are independent.

Claim 21 has been amended in independent form to include the recitations of canceled claim 20, claim 37 has been rewritten in independent form to include the recitations of canceled claims 35 and 36, and claim 44 has been rewritten in independent form to include the recitations of canceled claims 42 and 43. Claims 31, 41, 48, and 53 have been amended to avoid having these claims depend from a canceled claim. Applicant respectfully requests reconsideration and favorable action in this case.

§ 102 Rejections

Claims 1-4, 6, 8, 21-25, 37, 44, and 48 stand rejected under 35 U.S.C. § 102 as anticipated by Fisher U.S. Patent No. 5,754,446 ("Fisher '446"). Applicant respectfully traverses this rejection, and the assertions and determinations therein, for at least the following reasons.

Claim 1 recites, in part, a monitoring routine adapted to be executed on the processor that uses the one or more operating parameters and the characteristic curve to estimate the presence of cavitations in the device." Similarly, claims 21, 37, and 44 all include similar recitations directed to the use of a characteristic curve to estimate the presence of cavitation. The cited art fails to disclose or suggest such use of characteristic curves to estimate the presence of cavitation.

Fisher, Jr. et al. '446 discloses the use of a submersion factor, or, alternatively, an acoustic sensor, as an indication of the risk of cavitation. See, column 7, lines 23-44. Fisher, Jr., et al. '446 also discloses the use of constant flow curves. However, the constant flow curves are not used by Fisher, Jr. et al. '446 to estimate the presence of cavitation, but instead are used to identify candidate gate and blade settings. See, column 10, lines 38-43.

Accordingly, Fisher, Jr. et al.' 446 simply fails to disclose that it is possible and fails to suggest that it is even desirable to use a characteristic curve along with one or more operating parameters in order to estimate the presence of cavitation within a device. Instead, Fisher, Jr. et al. '446 in fact teaches away from the invention by indicating that relative

submersion level or, alternatively, an acoustic sensor, should be used to indicate the presence of cavitation.

Because Fisher, Jr. et al. '446 does not, in any manner, disclose the use of a characteristic curve to estimate the presence of cavitation, as recited in each of the pending claims, Fisher, Jr. et al. '446 does not and cannot anticipate any of these claims. Still further, it is clear that the prior art must make a suggestion of or provide an incentive for a claimed combination of elements to establish a *prima facie* case of obviousness. See, *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1446 (Fed. Cir. 1992); *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985). This principle holds true even if the applied art could be modified to produce the invention recited by the pending claims. See, *In re Mills*, 16 U.S.P.Q.2d 1430, 1432 (Fed. Cir. 1990); *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) ("The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.")

§ 103 Rejections

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). MPEP 2143.

Claims 5, 7, 9, 12, and 28 stand rejected as obvious over Fisher, Jr. et al. '446 in view of Dhindsa et al., U.S. Patent No. 5,846,056. Claims 10-11, 13, 26-27, 29, 39-40, and 46-47 stand rejected as obvious over Fisher, Jr. et al. '446 in view of Ferme et al., U.S. Patent No. 6,152,684. Claims 14-17, 21, 30, 38, and 45 stand rejected as obvious over Fisher et al. '446 in view of Seale et al., U.S. Patent No. 6,208,497. Claims 18-19, 31-34, 41, and 53 stand rejected as obvious over Fisher, Jr. et al. '446 in view of Dorchak, U.S. Patent No. 5,161,110. Claims 49-52 stand rejected as obvious over Fisher, Jr. et al. '446 in view of Fisher et al., U.S. Patent No. 5,864,183. As set forth in detail above with respect to the claim rejections based on anticipation by Fisher, Jr. et al. '446, that reference fails to disclose or suggest the use of

characteristic curves to estimate the presence of cavitation. With regard to all of these obviousness rejections, each of the secondary references cited by the examiner fail to make up for the deficiencies of the Fisher, Jr. et al. '446 patent. In particular, none of the secondary references disclose or suggest the use of a characteristic curve for estimating or indicating the presence of cavitation. Accordingly, even if one were to combine the teachings of the cited art, such a combination would not achieve the invention claimed in this application.

For example, although the Dhindsa et al. patent does disclose the need to determine whether cavitation is present and "to provide warning to the operator about the existence of such a condition" (column 2, lines 50-58), Dhindsa et al. does not, as the examiner suggests, teach alerting a user to the presence of cavitation. The language cited by the examiner in the Dhindsa et al. patent at column 8, lines 42-53 does not even mention cavitation, but instead only refers to "certain abnormal operating conditions". Applicant is presuming that the examiner's further citation of Dhindsa et al. at column 1, lines 43-49 is meant to be a reference to column 8, lines 43-49. In any event, Dhindsa et al. fails to disclose or suggest the use of a characteristic curve to estimate the presence of cavitation, and accordingly fails to make up for the deficiencies of Fisher, Jr. et al. '446.

Similarly, Ferme et al. discloses the use of high frequency sound sensors to detect cavitation. See column 2, lines 42-46, and claim 1 at column 10, lines 34-36. Fisher, Jr. et al. '183 also discloses the use of acoustic sensors 80 and 82 to provide "an indication of the relative level of cavitation." See, column 5, line 64 through column 6, line 3.

Seale et al. is not directed to systems or methods for detecting cavitation, but only mentions avoiding cavitation due to solenoid operation by operating solenoids smoothly. See, column 66, lines 18-26, column 76, lines 23-25, and column 76, line 63 to column 77, line 4.

Dorchak is not directed to addressing cavitation, and does not even mention cavitation.

The examiner has not identified any suggestion or motivation to modify or combine the cited references, and instead appears to be improperly relying on a hindsight-based analysis.


For the foregoing reasons, reconsideration and withdrawal of the rejections of the claims and allowance thereof is respectfully requested. Should the examiner wish to discuss

the foregoing, or any matter of form, in an effort to advance this application towards, allowance, the examiner is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

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